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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,108	03/31/2004	Arie Shahar	P-5864-US	5539
27130	7590	10/08/2004	EXAMINER	
EITAN, PEARL, LATZER & COHEN ZEDEK LLP 10 ROCKEFELLER PLAZA, SUITE 1001 NEW YORK, NY 10020			HEALY, BRIAN	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 10/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/813,108

Applicant(s)

SHAHAR ET AL.

Examiner

Brian M. Healy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-18 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 19-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Allowable Subject Matter

Claims 6-18 are allowed. None of the references of record teaches or suggests the claimed optical AND logic gate including combining devices with first and second inputs and an output with one of the first and second inputs includes an optical delay line, a splitting device having first, second third and fourth terminals, a nonlinear element, with third and fourth terminals form an optical loop including the nonlinear element displaced from the center of the optical loop, the first and second inputs are arranged to receive the first and second optical signals for producing a third optical signal at the first output of the combining device; with the third terminal of the splitting device arranged to receive the third optical signal from the first output of the combining device for producing at the second terminal a signal corresponding to the AND product of the first and second optical signals. These limitations are recited in claims 6-18.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,19-22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamil et. al., U.S.P. No. 5,414,789.

Tamil et. al. 789 teaches (Figs.1-4) an optical AND logic gate comprising: an integrated optical device including a summing gate 29 in the form of a Y-junction optical coupler, with first and second inputs for summing first and second optical signals to produce a third signal with the third signal being input to a threshold device 28,30,24 in the form of a non-linear optical material so that the signal output corresponds to the AND product of the first and second inputs. It should be noted that either coherent or non-coherent light signal can be used or that the logic gates can include phase control. The teachings of Tamil et. al. '789 clearly, fully, meets Applicant's claimed limitations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tamil et. al., U.S.P. No. 5,414,789 in view of Song, U.S.P. No. 6,647,163.

The teachings of Tamil et. al. 789' has already been discussed. Tamil et. al. 789' does not teach or suggests the use of a semiconductor optical amplifier as a non-linear element on an optical logic device.

Song 163' teaches (Figs.1-9) teaches an optical logic device that uses a semiconductor optical amplifier SOA as a non-linear element in an optical logic device for the purpose of performing optical logic operations

Since both Tamil et. al. 789' and Song 163' are from the same field of endeavor, i.e. optical logic devices, the purpose of using an optical semiconductor amplifier as a non-linear element in an optical logic device, as is taught by Song 163', would have been recognized in the pertinent art of Tamil et. al. 789'.

It would have been obvious at the time the invention was made by a person having ordinary skill in the art to modify the optical logic device of Tamil et. al. '789 by including a semiconductor optical amplifier as a non-linear element, as is taught by Song 163', for the purpose of performing optical logic operations.

The following references are also cited by the Examiner: Evans, U.S.P. No. 5,600,479 (Figs.1-8), Auffret et. al., U.S.P. No. 5,307,366 (Figs.1-5), Johnson et. al., U.S.P. No. 6,674,559 (Figs.1-9), Pratt, Jr. et. al., U.S.P. No. 4,382,660 (Figs.1-27), Kester et. al., U.S.P. No. 5,557,699 (Figs.1-12) and Liu et. al., U.S.P. No. 4,689,793 (Figs.1-9b).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-2347. The examiner can normally be reached on Compressed Tues-Thurs. 7AM-4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian M. Healy
Primary Examiner
Art Unit 2883

A handwritten signature in black ink, appearing to read "Brian Healy", with a stylized flourish at the end.

Brian Healy
Primary Examiner